

## CLAIMS

1. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

5 a step in which a test compound is administered to or contacted with a test animal or a test cell, and

a step in which it is confirmed whether or not said test compound regulates expression levels of LCE gene or a gene which is functionally equivalent to said gene, in said test animal or test cell.

10 2. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

a step in which a test compound is contacted with a test animal or a test cell possessing a fusion gene comprising an expression regulatory region of LCE gene and a reporter gene, and

15 a step in which expression of said reporter gene in said test animal or test cell is assayed.

3. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

a step in which a test compound is contacted with LCE protein and

20 a step in which it is confirmed whether or not said test compound exhibits an effect on the activity of said protein.

4. A method of evaluating compounds which are effective for treatment or prevention of obesity comprising

a step in which a test compound is contacted with a plurality of elongase proteins including LCE,

25 a step in which the activities of said plurality of elongase proteins are assayed, and

a step in which test compounds are selected which inhibit LCE activity among said plurality of elongase proteins.

30 5. An agent for treatment or prevention of obesity which contains as an active ingredient a compound obtained by an evaluation method according to any one of claims 1 to 4.

6. A method of inhibiting fat synthesis by inhibiting LCE fatty acid synthesis activity.

7. A method of inhibiting fat synthesis by inhibiting LCE fatty acid synthesis activity by RNAi.

8. A method of inhibiting fat synthesis according to claim 7, wherein said RNAi is accomplished by using one or more siRNA selected from the group consisting of siRNA consisting of the nucleic acids of SEQ ID NOs: 13 and 14, siRNA consisting of the nucleic acids of SEQ ID NOs: 15 and 16, siRNA consisting of the nucleic acids of SEQ ID NOs: 17 and 18, siRNA consisting of the nucleic acids of SEQ ID NOs: 19 and 20, siRNA consisting of the nucleic acids of SEQ ID NOs: 21 and 22, siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24, siRNA consisting of the nucleic acids of SEQ ID NOs: 25 and 26, siRNA consisting of the nucleic acids of SEQ ID NOs: 27 and 28, siRNA consisting of the nucleic acids of SEQ ID NOs: 29 and 30, siRNA consisting of the nucleic acids of SEQ ID NOs: 31 and 32, siRNA consisting of the nucleic acids of SEQ ID NOs: 33 and 34, siRNA consisting of the nucleic acids of SEQ ID NOs: 35 and 36, siRNA consisting of the nucleic acids of SEQ ID NOs: 37 and 38, siRNA consisting of the nucleic acids of SEQ ID NOs: 49 and 50, siRNA consisting of the nucleic acids of SEQ ID NOs: 51 and 51, and siRNA consisting of the nucleic acids of SEQ ID NOs: 53 and 54.

9. A method of inhibiting fat synthesis according to claim 7, wherein said RNAi is accomplished using siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24.

10. A method of treating or preventing obesity comprising a step of inhibiting LCE fatty acid synthesis activity.

11. A method of treating or preventing obesity by inhibiting LCE fatty acid synthesis activity by RNAi.

12. A method of treating or preventing obesity according to claim 11, wherein said RNAi is accomplished by using one or more siRNA selected from the group consisting of siRNA consisting of the nucleic acids of SEQ ID NOs: 13 and 14, siRNA consisting of the nucleic acids of SEQ ID NOs: 15 and 16, siRNA consisting of the nucleic acids of SEQ ID NOs: 17 and 18, siRNA consisting of the nucleic acids of SEQ ID NOs: 19 and 20, siRNA consisting of the nucleic acids of SEQ ID NOs: 21 and 22, siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24, siRNA consisting of the nucleic acids of SEQ ID NOs: 25 and 26, siRNA consisting of the nucleic acids of SEQ ID NOs: 27 and 28, siRNA consisting of the nucleic acids of

SEQ ID NOs: 29 and 30, siRNA consisting of the nucleic acids of SEQ ID NOs: 31 and 32, siRNA consisting of the nucleic acids of SEQ ID NOs: 33 and 34, siRNA consisting of the nucleic acids of SEQ ID NOs: 35 and 36, siRNA consisting of the nucleic acids of SEQ ID NOs: 37 and 38, siRNA consisting of the nucleic acids of SEQ ID NOs: 49 and 50, siRNA consisting of the nucleic acids of SEQ ID NOs: 51 and 51, and siRNA consisting of the nucleic acids of SEQ ID NOs: 53 and 54.

13. A method of treating or preventing obesity according to claim 11, wherein said RNAi is accomplished using siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24.

14. A method of examining obesity by assaying an expression level and a change in expression level of LCE gene in a test tissue or a test cell.

15. A method of examining obesity by assaying an expression level and a change in expression level of LCE protein in a test tissue or a test cell.

16. A method of examining obesity by detecting a polymorphism in LCE gene in a test tissue or a test cell.

17. A method of examining obesity by detecting expression or activity of a protein which affects expression of LCE gene thorough interaction with LCE protein.

18. siRNA consisting of the nucleic acids of SEQ ID NOs: 23 and 24.

19. An LCE expression inhibiting agent comprising siRNA according to claim 18.

20. A fatty acid synthesis inhibiting agent comprising siRNA according to claim 18.

21. A therapeutic or preventing agent for obesity comprising siRNA according to claim 18.